Welcome to the Biweekly Restoration Information Update Page. This web site

- Provides current information on wetland and river corridor restoration projects
- Recognizes outstanding restoration projects
- Provides a forum for information sharing

We welcome the submission of articles and announcements related to your restoration project. Just send your write-up to EPA's contractor at restorationupdate@tetratech-ffx.com or mail it to Kathryn Phillips, Biweekly Restoration Update Coordinator, Tetra Tech, Inc., 10306 Eaton Place, Suite 340, Fairfax, VA 22030. We will carefully consider your submission for inclusion in a future update. If your submission is selected, please note that it might be edited for length or style before being posted. Because this web site is meant to be a public forum on restoration information, we cannot post any information that is copyrighted or information that serves or has the appearance to serve as advocating or lobbying for any political, business, or commercial purposes.

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Feature Article

Scouting for Riparian Restoration
Riparian restoration is more than volunteer work for some Maryland Boy Scouts. The Scouts are helping local nonprofit and government organizations implement riparian restoration projects in the Tiber-Hudson River watershed in northern Howard County, Maryland. Unlike a typical restoration project, however, these Scouts do more than plant trees and shrubs. The're doing it all--planning the project layout, identifying and soliciting funding sources, drumming up volunteer support, planting, and maintaining the restoration project. Why? Many local Scouts are choosing to restore riparian buffers as part of their Eagle Scout projects in exchange for a choice of project sites and guidance from local organizations on riparian restoration and grant writing. All parties benefit: the Scouts learn new responsibility, while the local organizations see environmental improvement at minimal financial investment.
Project History

The Boy Scout project is a key part of the "Helping Our Wild Neighbors (HOWN)" program initiated in the mid-1990s by the Tiber-Hudson Watershed Partnership (THWP), the environmental arm of the nonprofit, volunteer-driven Ellicott City Restoration Foundation. The HOWN program works to restore stream buffers to increase wildlife habitat and capture nonpoint source pollutants.

As a first step in the program, THWP worked with the local utility to gain permission to restore the understory and riparian areas located on their utility rights-of-way. The company readily agreed to let THWP plant any native plant that wouldn't interfere with power lines. Since the rights-of-way transect the Tiber-Hudson in three places, the THWP now had permission to restore a number of riparian areas and all meadow areas.

THWP wanted to develop the HOWN program so that it could also serve as an educational tool for local children and their parents. When a Scout group asked THWP if some of the Scouts could develop Eagle Scout projects in support of the HOWN program, a perfect partnership was born. THWP applied for and received a $16,000 EPA environmental justice grant to support development of the THWP/Scout partnership, creation of the Eagle Scout project, and development of the HOWN Scout badge. Using the funds, THWP arranged for the nonprofit Center for Watershed Protection (CWP), also located in Ellicott City, to educate scout troop leaders about watershed science and to provide the educational resources to prepare the Scouts themselves for stream buffer restoration projects.

First, the CWP held educational sessions for the Scout troops that explained the importance of healthy watersheds. They discussed the process and purpose of riparian restoration and emphasized that restoration is one important tool in an overall strategy to improve watershed health. To further prepare the Eagle Scout candidates and their Scout leaders, THWP held several grant-writing sessions that taught the young Scouts and their leaders how to identify, apply for, and manage grants.

Applying What They've Learned

Once the Scouts were armed with the necessary resources, they could proceed. So far five Scouts have completed their Eagle Scout projects, and approximately 20 more either are in the planning and implementation phase or have expressed their intentions to craft a project in support of the HOWN program. Some of the projects are straight riparian restoration; the Scouts have to choose a site, plan the project, find the funding for the plants, place the plant order, find volunteers, and implement the project. The Scouts also must monitor and maintain the project to ensure that the native plants remain healthy. These projects are typically large--the Eagle Scout candidate plants between 50 and 100 trees and shrubs, creating a buffer at least 75 feet wide on each river bank.

Other projects are multipurpose. For example, one Scout recently restored a riparian wet meadow area to protect water quality and at the same time was able to reestablish habitat for an endangered butterfly. The Baltimore checkerspot, the state insect, relies almost solely on the turtlehead plant as a larval food and egg carrier. Unfortunately, turtlehead is also a favorite food of the local deer population, which is negatively affecting the survival of the checkerspot. Having carefully researched the problem, the Scout erected a fence around the 100 new turtlehead plants in the restored area to keep the deer away.

The Eagle Scout candidates have to learn to take the initiative and find the resources they need to support their projects. Since most projects require extensive planting, the Eagle Scout candidates typically recruit members of their troop to help. In return for assisting, each troop member earns credit toward merit badge components encompassed in the HOWN badge, such as wildlife, forestry, and water quality. Each component earns its own arc-shaped badge that fits around the outer edge of the HOWN badge.

The Eagle Scout candidates also turn to the THWP partners and other local groups if they have questions about the technical aspects of the project. They typically work with many different people and organizations throughout the course of the project. "By the time they've completed an Eagle Scout project of this scope, the young men are changed," explained Cindy Hirshberg, chair of THWP. "They enjoy a sense of accomplishment and are much more confident."

The Future

The program continues to expand. Currently Scouts are planting only at two utility right-of-way sites in the Patapsco River watershed, located in the northern portion of the county. With the

cooperation of the Howard County Department of Public Works, the project will soon include planting sites on public riparian land in the Patuxent River watershed, located in the southern portion of the county. Both rivers are important freshwater tributaries of the Chesapeake Bay. For more information, contact the Tiber-Hudson Watershed Partnership, Ellicott City Restoration Foundation, PO Box 92, Ellicott City, MD 21041. Phone: (410) 480-0822; e-mail: ECRFPres@aol.com.
If you'd like your project to appear as our next Featured Article, e-mail a short description to restorationupdate@tetratech-ffx.com
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Five-Star Restoration Projects Update

The goal of EPA's Five-Star Restoration Program is to bring together citizen groups, corporations, youth conservation corps, students, landowners, and government agencies to undertake projects that restore streambanks and wetlands. The program provides challenge grants, technical support, and peer information exchange to enable community-based restoration projects. A few five-star restoration projects are being revisited to see if the modest amount of funding (between $5,000 and $20,000) has helped the local restoration partners achieve their goals.

Project Title: Partnering with Local Conservation Districts: Teton River Project Promotes Watershed-Wide Education and Enhancement
Five-Star Grant: $10,000
Grant to: Teton County Conservation District
Location: Teton and Choteau Counties, Montana
Grant Year: 1999
Original Project Description:
The Teton County Conservation District will restore habitat and buffer areas along the Teton River to demonstrate habitat and water quality improvement opportunities. In partnership with Teton and Choteau County schoolteachers, Boone and Crockett Ranch staff, and Nature Conservancy scientists, county extension agents will conduct educational activities for children and adults to encourage community stewardship of the Teton River watershed.
Update:
The Teton River Education and Enhancement Project is part of a larger watershed protection effort developed by the Teton River Watershed Group (TRWG). This grassroots group, formed in 1994, consists of more than 20 organizations and agencies.
TRWG developed a long-term plan to resolve the water quality, quantity, and weed control issues facing the 1.2-million-acre Teton River Basin. As part of the plan, they realized that active local restoration and restoration education across the entire watershed would be important to the successful revival of the river. Monitoring would also be needed to measure progress toward specific water quality goals. This project is one step of the watershed effort, and it specifically fulfills objectives to (1) improve the water quality monitoring program; (2) improve the adult and youth education programs; and (3) improve riparian health through stream stabilization, riparian fencing, and grazing and farm management.
Twenty volunteers were trained to monitor various parameters (pH, turbidity, dissolved oxygen) for water quality. The data collected help TRWG to identify areas needing attention and also assist the public in understanding the cause and effect issues in the basin.
Numerous education activities featuring restoration and river protection issues (use of a watershed pollution model, field days, noxious weed seminars) were held for youth, citizens, and landowners. Local schools, environmental education specialists, and county extension agents all actively participated in education efforts throughout the entire watershed.
As part of the restoration efforts, TRWG installed 5,000 feet of fencing to protect streams from grazing and livestock, improved 45 miles of stream corridor through grazing and farm management planning, and planted trees on 20,000 acres of both public and private land.
The Teton River Education and Enhancement Project is a long-term watershed protection effort, and work will continue using the TRWG watershed plan as a guide. Education and outreach

efforts for adults and children are being expanded. Upcoming stream project sites have been identified and prioritized. **[Updated April 2002.]**

Project Title: Clearwater Restoration Project
Grant to: Hillsborough County Parks and Recreation Department
Location: Tampa, Florida
Grant Year: 1999
Original Project Description:
The Clearwater Restoration Project will restore a 2-acre site in the Brooker Creek Preserve, a recent acquisition for protection of the Brooker Creek watershed. The project will remove trash and fill, clear nonnative vegetation, and replant native wetland vegetation. The restoration will complement the larger-scale upland restoration project ongoing at the site and will be a part of a larger regional restoration plan. This project received funding from EPA Region 4.
Update:
The Brooker Creek Buffer Preserve is a 410-acre parcel of land. Brooker Creek Frog Pond, a small, isolated wetland, is located in an open field on the Preserve. Restoration of the pond required removal of trash and construction debris, clearing of exotic nuisance vegetation, and replanting of native wetland and transitional plant species.
The restoration work was completed in three phases. Phase I involved physically preparing the site for restoration and initiating a contract with the Leslie Peters Halfway House for economically disadvantaged youths to be employed for the restoration work. Phase II includeded the bulk of the restoration effort. The youths served a total of 215 hours removing construction debris and trash, clearing exotic nuisance vegetation, planting native wetland and transitional plants, and mulching. They greatly enjoyed working on the project and asked to be considered for future efforts. During Phase III project partners watered the plants twice a week (because of drought conditions) and conducted additional excavation work. Some of the aquatic plants did not survive, but overall the survival rate was high.
Additional restoration work will occur at the site, including restoration of upland and transitional areas and additional wetland plantings. The restoration of the pond will complement the ongoing upland habitat restoration project on the site and is part of a regional restoration effort that encompasses adjacent land in Pinellas County. The two county preserve areas constitute the largest and most significant natural habitat area remaining in the entire region. **[Updated March 2002.]**

Project Title: Eastern Neck National Wildlife Refuge Wetland Restoration
Five Star Grant: $10,210
Grant to: National Aquarium in Baltimore
Location: Queen Anne's County, Maryland
Grant Year: 2000
Original Project Description:
The National Aquarium in Baltimore will work with the Chesapeake Bay Trust, the Aquarium Conservation Team, and others to restore a 4-acre salt marsh on the Eastern Neck National Wildlife Refuge. The project will establish a working partnership between community-based volunteer organizations and the scientific community to enhance salt marsh restoration efforts within the Chesapeake Bay. Project partners will train a dedicated corps of volunteers to collect and manage information on salt marsh restoration activities that can potentially be expanded to other restoration sites throughout the Chesapeake Bay.
Update:
A 4-acre site on the southwest edge of the Eastern Neck National Wildlife Refuge was chosen as the restoration site for this Five-Star Project. At this site, sediment accumulation resulting from a U.S. Fish and Wildlife Service and U.S. Army Corps of Engineers erosion prevention project provided an ideal opportunity for salt marsh restoration and planting.
Eight members of the Baltimore Aquarium's Aquarium Conservation Team (ACT!) joined with 26 additional community volunteers to complete the marsh planting effort. Volunteers spent more than 700 hours planting salt marsh cordgrass (*Spartinia alterniflor*) and saltmeadow hay (*Spartina*

patens). After the completion of two community planting efforts, 20,000 new wetland plants were growing in the marsh.
ACT!, a specially trained team of monitoring volunteers, tracked the process of vegetative growth at the project area. Monitoring results revealed that an overwhelming majority of the newly planted vegetation is thriving. An estimated 70 to 75 percent of the vegetation planted has survived, and many plants are producing seeds and runners that are filling in the gaps in the original planting patterns. Wetland reptiles, amphibians, birds, and mammals have also moved in, making the marsh their home.
In addition to the creation of a new marsh area, this project gave the aquarium a reason to develop a trained crew of conservation leaders. The aquarium selected and trained 18 volunteers to head up restoration efforts and serve as members of ACT! This leadership team used their newly acquired skills to train volunteers in restoration planting and monitoring techniques during both community planting days. The training and commitment of the ACT! members have also raised the quality of monitoring results normally returned by untrained monitoring volunteers. In addition, the time commitment required by the ACT! program ensures that volunteers will be available to continue monitoring efforts at the site into the future. **[Updated March 2002.]**
For more information on EPA's Five-Star grant program, visit http://www.epa.gov/owow/wetlands/restore/5star.

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Community-Based Restoration Partnerships

Riparian Buffers Planted to Protect Endangered Mussel
The Thomas Jefferson Soil and Water Conservation District (TJSWCD) in Charlottesville, Virginia recently completed a riparian restoration project that protects water quality and restores habitat for a state and federal endangered mussel species. On November 17, 2001, with the help of approximately 55 volunteers and two riparian landowners, the District planted a riparian forest buffer on two adjoining private properties on Buck Mountain Creek in Albemarle County. Participants planted many different varieties of trees and shrubs, including white and red oaks, winterberry holly, black willow, black walnut, serviceberry, and others. Many of these trees and shrubs produce nuts and berries that attract a variety of wildlife. Although the weather was great, extremely dry soil made it difficult to dig the holes to plant the trees. However, volunteers persisted to get the job accomplished.
The new riparian forest buffer will yield a number of benefits. The District hopes it will help restore habitat and further enhance existing populations of the James Spinymussel, located downstream of this location. By stabilizing the creek bank and intercepting nonpoint source runoff, the buffer should also help improve the water quality downstream in the South Fork Rivanna River Reservoir, a drinking water supply source for Albemarle County and the City of Charlottesville. Funds for the buffer project were provided through a grant administered by the U.S. Fish and Wildlife Service and TJSWCD.
The landowners hope to further enhance the project area by installing a conservation easement to permanently protect the stream in the near future. Staff from TJSWCD will be working with the owners to assist with the creation of the easement under the District's newly established Conservation Easement Program. For more information, see http://avenue.org/tjswcd/winter02/page5.html or contact the Thomas Jefferson Soil and Water Conservation District, 2134 Berkmar Drive, Charlottesville, VA 22901. Phone: (434) 975-0224; e-mail: tjswcd@avenue.org.
Improving Pringle Creek Through Community Cooperation
Pringle Creek in Salem, Oregon, suffers from "urban ditch syndrome"--a common ailment in many urban creeks. Over time, the water quality in the creek has been degraded, not by any one easily recognizable source of pollution, but because of nonpoint source (NPS) pollution--multiple small pollution sources located throughout the watershed. To address problems associated with NPS pollution and Pringle Creek, a partnership of local and state government, business, and citizen volunteer groups formed the Pringle Creek Watershed Enhancement Team (WET). The team

works with businesses, institutions, and residents in the watershed to voluntary change waste management behaviors to reduce NPS pollution and benefit the creek.

Involving the Public

The key to the WET's program is to show residents of the watershed that small, simple changes in their everyday activities can have a significant effect on water quality. To introduce their program to the residents, WET mailed out hundreds of pledge booklets beginning in July 2000. The booklets include information about watersheds and the WET project and suggest actions that could help improve water quality in Pringle Creek. Suggested activities include washing cars on lawns or in car washes that recycle water and reducing fertilizer use on lawns. A detachable pledge card, included with the booklet, allowed residents to make a commitment to change their waste management behaviors. Upon receipt of the pledge card, WET sent the pledger useful local coupons (often for car washes and bus rides) and a Sun Catcher. Businesses and industries in the watershed are also encouraged to pledge. Armed with the booklet's information, a participating WET business might choose to reject free promotional samples offered to their company that they don't need or redesign their landscape using water-saving plants. Participating businesses are encouraged to prominently display the Sun Catcher, which acknowledges their participation in the project. This may encourage other project participants to frequent the business that participate rather than the businesses that do not.

In addition, the WET workgroup visited schools in the Pringle watershed and helped teachers integrate watershed pollution awareness into their curriculum. WET volunteers also visited neighborhood association meetings to promote participation in the project.

Sustained Effort

Ultimately, WET wants to see businesses and residents permanently adopt environmentally friendly waste management methods. Once the behavior change has been established the project team hopes to get out of the way and allow residents to carry out the principles of their pledge on their own. This would enable the project team to work with another appropriate watershed. For more information, contact John Taylor, DEQ at (503) 378-8240 x230 or e-mail taylor.john@deq.state.or.us; or Liz Frances, WET Chairperson at (503) 581-5356 or e-mail: gardenangel@uswest.net.

Agencies and Citizens Team Up to Restore Maryland Wetland

To celebrate National Volunteer Week, on April 26, 2002, National Oceanic and Atmospheric Administration (NOAA) members and staff, Maryland Congress members, and state legislators donned boots and rolled up their sleeves to plant marsh grass in a wetland area on Maryland's Eastern Shore. Timothy R. E. Keeney, deputy assistant secretary of commerce for oceans and atmosphere, and Dr. Bill Hogarth, director of NOAA's National Marine Fisheries Service, led a crew of 15 NOAA staff and several dozen other volunteers from national and local area organizations in planting a total of 65,000 cordgrass plants. The cordgrass plantings will help thwart erosion in a 4-acre tidal wetland on the Eastern Neck Wildlife Refuge.

"As the nation's leading agency for oceans and atmosphere, NOAA is proud to participate in such a great event," said Keeney. "Wetlands are critical to wildlife survival and to the overall integrity of this countries' environment."

Senator Barbara Mikulski and Representatives Wayne Gilchrest and Robert Erlich worked together with participants from the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Friends of the Eastern Neck National Wildlife Refuge, the Curtis and Edith Munson Foundation, the National Fish and Wildlife Foundation, the Chesapeake Bay Trust, and the Shared Earth Foundation to help in the effort.

The project which was coordinated by the National Aquarium in Baltimore, addressed the long-term problem of erosion in the refuge. The 4-acre marsh was created by the Army Corps of Engineers from 26,000 cubic yards of dredged material from the Kent Narrows navigation channel. Its construction provided a cost-effective and environmentally sound solution to the island erosion problem and provided for the placement of clean dredge material. However, the dredged material used to create the marsh is eroding at a rapid rate. (For more information about the Eastern Neck Wildlife Refuge marsh restoration project please see the Five Star Update section above.)

"Inviting the public to join in a hands-on restoration activity further connects people to the plants and animals of the Chesapeake Bay--making a better world for both," said Glenn Page, director

of conservation at the Aquarium. "This unique community-based restoration effort is a great example of a partnership that works between government and the private sector."
The Friends of Eastern Neck, a volunteer group dedicated to the support of Eastern Neck National Wildlife Refuge and restoration of estuarine habitats in the Chesapeake Bay, will perform long-term maintenance of the site. Friends of Eastern Neck and members of the Aquarium's Conservation Team (ACT!) plan to hold education and demonstration sessions on planting techniques and site restoration and monitoring. For more information, see www.publicaffairs.noaa.gov/releases2002/apr02/noaa02047.html.
If you are part of an innovative community-based partnership that is working to restore river corridors or wetlands, we'd like to hear from you. Please send a short description of your partnership to restorationupdate@tetratech-ffx.com.

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Achieving Restoration Results

Federal and State Agencies Restoring Louisiana Wetlands for More Than a Decade
Over the past 10 years, the National Oceanic and Atmospheric Administration (NOAA) Restoration Center and NOAA Fisheries field staff in Baton Rouge and Lafayette, Louisiana, have managed 22 coastal wetland restoration projects valued at $88 million. Projections indicate that all together these projects will restore 21,000 acres and benefit more than 150,000 acres of wetlands.
January 2001 marked the tenth anniversary of NOAA Fisheries directing coastal wetland restoration activities in conjunction with other federal agencies and the state of Louisiana under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA or the Breaux Act). CWPPRA was enacted in 1990 to provide funds for protecting, restoring, and conserving threatened coastal wetlands. A majority of CWPPRA funds are spent on wetlands projects in Louisiana because 40 percent of all wetlands in the contiguous United States are located in the state and 80 percent of the nation's wetland loss occurs there (approximately 30 square miles per year). These wetlands support a $1 billion annual fishery industry and protect a vast network of oil and natural gas infrastructure that provides much of the nation's energy.
The Breaux Act established a multifederal agency task force, including NOAA Fisheries and the Louisiana Governor's Office, to annually select projects based on technical (scientific) merit, cost effectiveness, and predicted wetland quality and quantity. NOAA Fisheries is actively involved in preserving and restoring coastal habitats utilized by many living marine resources including recreationally and commercially important fish species. As a result of CWPPRA, the agency has gained considerable expertise in planning and constructing wetland projects. It has also formed major alliances with federal and state agencies involved in the management and protection of wetlands. Each CWPPRA restoration project brings economic benefits to state and local economies during planning and construction and, in the long term, through the preservation of wetlands.
To stem wetlands loss in Louisiana, NOAA Fisheries has employed every major restoration technique highlighted by several projects constructed in the last few years, including the following:

- Sediment Trapping--The Little Vermilion Bay Terraces project, constructed in 1999, created a chevron pattern of earthen terraces, which was followed by planting with marsh grass. The terraces support wetland vegetation, dissipate wave energy, and allow sediment to drop out of the water column. Sediment accretion will promote the development of additional wetland acreage and result in the establishment of hundreds of

acres of marsh habitat in Little Vermilion Bay over time.

- Vegetative Planting--The Chandeleur Islands are a 22-mile-long barrier island chain located off the southeastern coast of Louisiana. In 1998 Hurricane Georges passed within 5 miles of the islands and created more than 100 washover channels through the barrier chain, dramatically increasing rates of shoreline retreat. By planting more than 80,000 plants in strategic locations, the project will stabilize the islands, trap sediments, and accelerate marsh expansion. Information from a pilot project conducted in 2001 was used to improve the final project design and help ensure success in this dynamic environment.
- Hydrologic Modification--The Black Bayou project area, located in southwestern coastal Louisiana, is a 25,530-acre wetland. The project benefits the largest area of coastal wetlands constructed by the CWPPRA program to date. The $6.4 million project was designed to restore coastal marsh habitat and slow the conversion of wetlands to shallow open water within the project area. Construction included the restoration of 22,800 linear feet of the southern spoil bank of the Gulf Intracoastal Waterway, the installation of three rock weirs to reduce the cross-sectional area of man made canals into the project area, and the installation of a state-of-the-art self-regulating tide gate. The SRT, built in California, has never been used as a restoration technique in Louisiana. NOAA Fisheries believes it will achieve the dual objectives of protecting thousands of wetland acres while maintaining fisheries access to these very wetlands. If proven successful, the SRT could become a major restoration technique in coastal Louisiana.
- Marsh Creation--The Big Island and Atchafalaya Sediment Delivery projects are located in the Atchafalaya River Delta. Natural deltaic growth had been hampered by dredging efforts to maintain the federal navigation channel. The projects restored freshwater and sediment delivery processes by creating a series of distributary channels, which will restore normal deltaic expansion. Sediment was placed in a pattern to mimic delta lobes at an elevation supporting wetland habitat. More than 1,200 acres of new wetland habitat were created in 1998, and another 3,000 acres are expected to grow naturally over the next 20 years.

For more information, contact Gordon Helm, NOAA Fisheries, at (301) 713-0622 or see www.noaanews.noaa.gov/magazine/stories/mag14.htm.

Luis Randall--Field of Dreams, Wetlands Style

After 58 years of ranching, Luis Randall found that returning land to its natural state as a wetland was more profitable than farming it. Since 1868 residents have been altering the landscape of the

Langell Valley outside of Bonanza, Oregon, to better suit their needs. The first was the Langell family, who were among the first permanent settlers in the valley. They dug channels to reclaim 4,000 acres of farmland. In 1904 growing numbers of people moved to the valley, and as they came, they built canals and irrigation ditches that transformed the native sagelands into grain and pasture fields. Luis Randall had begun ranching in the valley when the biggest change occurred--the Bureau of Reclamation channelized and rerouted the Lost River through adjacent swamplands to promote irrigation. Randall recalls breaking up 640 acres of wetlands in 1945 to use for oat production. He notes, "After a couple of years of good yields, the swamp land was never very productive."

"If you build it, they will come."

In an attempt to generate more income than he was earning farming the reclaimed wetlands, Randall decided to return the land to its native state and start a hunting club. In the 1970s Randall restored the marginal soggy ground to its native wetland state. He completed the restoration on his own, without the expertise of federal agencies that are now available for restoration projects. He recalls, "It was a lot easier back then. You didn't have to get everyone's permission and all kinds of permits to change around your land." He did not have to wait for permits before he dug a drain ditch and built a dike to keep the poorest soils wet. It was not long before waterfowl moved into the area, and he was able to charge people $10 to hunt in his wetland.

"Go the distance"

Randall continues to make wetland restoration a priority on his land. In the late 1980s and early 1990s he worked with the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program to protect an additional 400 acres of wetlands and fence some springfed ponds on his land. By 1997 it was clear to Randall that the duck club was a far more profitable use for the land than ranching had ever been, so he enrolled 1,000 acres of his land in the Wetland Reserve Program. A variety a federal technical assistance and financial programs were available to Randall as he restored the additional 1,000 acres. While the technical assistance offered by federal agencies made this restoration project proceed more smoothly than his last project, the permit process caused Randall great frustration. "Lucky for me, Jim Hainline of U.S. Fish and Wildlife Service and a cast of others were there to shepherd me through the Corps of Engineers permits and archeological clearances," comments Randall.

With the help of the U.S. Fish and Wildlife Service, Natural Resource Conservation Service, Ducks Unlimited, and a North American Wetland Conservation Act grant, Randall has installed water control structures and constructed levees to restore the historic hydrology in three independent wetland areas on his land. In Spring 2002, and after more than 30 years of habitat restoration, sandhill cranes, tricolored blackbirds, bald eagles, northern harriers, and a variety of waterfowl inhabit the restored lands. Information from this article was published in March 2002 issue of *Oregon Wetlands* found at http://wetlands.dfw.state.or.us/pdfs/Wet032002.pdf. The story is an excerpt from the book *Heroic Tales of Wetland Restoration* by Esther Lev and published by the Wetlands Conservancy in November 2001. For more information, contact the Wetlands Conservancy at (503) 691-1394.

If you are part of an innovative restoration project that has had positive results, we'd like to hear from you. Please send a short description of your project to restorationupdate@tetratech-ffx.com.

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Funding for Restoration Projects

New England Grassroots Environmental Fund

The New England Grassroots Environment Fund (NEGEF) is a small grants program designed to foster and give voice to grassroots environmental initiatives in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. NEGEF funds community involvement in projects that address a wide range of environmental issues, including marine environment, water quality, watershed management, wetlands, wildlife, and youth-organized environmental work. Grant applications are accepted at any time but need to be postmarked by September 15 to be considered for the next decision cycle. Typical grants awards are for up to $2,500. For more information, visit www.grassrootsfund.org or contact New England Grassroots

Environment Fund, PO Box 1057, Montpelier, VT 05601. Phone: (802) 223-4622; fax: (802) 229-1734; e-mail: info@grassrootsfund.org.

The Town Creek Foundation

Established in 1981, the Town Creek Foundation seeks a healthy environment, an informed society, and a peaceful world. The foundation is committed to achieving its mission through public education and citizen action.

The foundation supports programs that engage citizens in protecting biological diversity. It is especially interested in projects that

- Preserve the ecological richness of our natural heritage, with a major focus on our federal public lands.
- Promote policies and practices to protect the land, estuaries, and coastal bays of the mid-Atlantic region.
- Modify patterns of consumption and degradation of our natural resources; address the environmental impacts of personal, institutional, and community choices; and build public interest in conservation.

A letter of inquiry must be submitted before a full proposal is prepared, and proposals must be received by September 15, 2002, to be considered for the next grant cycle. Recent grants have ranged between $10,000 and $60,000. For more information, visit www.towncreekfdn.org or contact Town Creek Foundation, PO Box 159, Oxford, MD 21654. Phone: (410) 226-5315; e-mail: info@towncreekfdn.org.

North American Wetlands Conservation Act Standard Grant Deadline Nears

The North American Wetlands Conservation Act of 1989 provides matching grants to carry out wetlands conservation projects in the United States, Canada, and Mexico. The act was passed, in part, to support activities under the North American Waterfowl Management Plan. This plan is an international agreement among the three countries for the long-term protection of wetland/upland habitats on which waterfowl and other migratory birds in North America depend. Both the Standard Grant and Small Grant programs help deliver funding to on-the-ground projects for the protection, restoration, or enhancement of an array of wetland habitats. Eligible applicants include public or private, profit or nonprofit entities or individuals establishing public-private sector partnerships.

Applications are due each year on the last Friday in July for Standard Grants ($50,000 to $1 million) and on the first Friday in December for Small Grants. However, proposals may be submitted at any time, and early submissions are encouraged. For more information on Standard Grant proposals, contact David Buie (david_buie@fws.gov) at (301) 497-5870, or Bettina Sparrowe (bettina_sparrowe@fws.gov) at (703) 358-1896, at the U.S. Department of the Interior, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, Room 110, Arlington, VA 22203.

Please send any news you have on funding mechanisms available to local community organizations to restorationupdate@tetratech-ffx.com.

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News and Announcements

Illinois Nature Preserves Commission Protects More Than 1,200 Acres

On March 15, 2002, the Illinois Nature Preserves Commission (INPC) announced that more than 1,200 acres of significant Illinois natural lands are being protected through dedication as nature preserves or land and water reserves. Four new nature preserves are being dedicated, four others are expanding, and three other properties are being protected as land and water reserves. Areas dedicated as nature preserves may be used for wildlife viewing, hiking, nature photography, and approved scientific research with the permission of the private landowner. Areas registered as land and water reserves may be used for the same activities, as well as fishing, hunting, and other approved activities that do not damage the natural features of the protected area, if the landowner approves.

In the mid 1970s, an inventory of natural areas found that only 0.07 of 1 percent of the entire state was in the same or similar condition as it was in the early 1800s, when the settlers first arrived. The inventory serves as the guide for the commission when determining eligibility of lands for the INPC's programs. The commission, made up of nine citizens appointed by the governor, was established by state statute in 1963 and was the first of its kind in the country. Its mission is to assist private and public landowners in protecting high-quality natural areas and habitats of endangered and threatened species through voluntary dedication or registration of those lands into the Illinois Nature Preserves System. Illinois now has more than 41,000 acres of dedicated nature preserves located in 78 counties. There are 23,000 acres of registered land and water reserves located in 41 counties. Examples of the land recently registered or dedicated include the following:

- *Champaign County--Riverbend Land and Water Reserve, Registration*. The Champaign County Forest Preserve District (CCFPD) is protecting about 1.5 miles of the Sangamon River streambed and its riparian corridor as the Riverbend Land and Water Reserve. The proposed reserve is 34 acres in size and part of the Riverbend Forest Preserve, which was acquired by the district in 2001 with funds from the Illinois Department of Natural Resources' Open Lands Trust program. The Illinois Natural Areas Inventory identifies the Sangamon River, including the river segment within the Riverbend Forest Preserve, as a biologically significant stream, representative of the Grand Prairie Section of the Grand Prairie Natural Division, with high mussel diversity that harbors three species of state-endangered or state-threatened mussels.
- *Washington County--Marilandica Acres Land and Water Reserve, Registration.* The Marilandica Acres Land and Water Reserve is a 30-acre, high-quality southern flatwoods community, representative of the Effingham Plain Section of the Southern Till Plain Natural Division. It is owned by Glen and Linda Schuetz. The proposed reserve is part of the 158-acre Big Open Woodland Illinois Natural Areas Inventory site. Marilandica Acres is mostly composed of the less common pin oak, swamp white oak type of southern flatwoods and contains several prairie plants in the understory, a feature uncommon to flatwoods today. The site is also part of Illinois' largest contiguous forest, located along the unchannelized portion of the Kaskaskia River corridor.
- *Kane County--City of Elgin Addition and Fox Valley Land Foundation Addition of Nature Preserve Buffer to Trout Park Nature Preserve, Dedication.* This dedication includes two undeveloped city lots, totaling 0.8 acre. One 0.27-acre lot at 530 Glenwood Trail is owned by the city of Elgin, while the other 0.43-acre lot at 486 Glenwood Trail is owned by the Fox Valley Land Foundation. Both are being added to the Trout Park Nature Preserve, a 26-acre site owned by the city. Trout Park was recognized by the Illinois Natural Areas Inventory for high-quality forested fen. Other natural communities include a series of fens and seeps, several spring runs associated with the strong ground water discharge, and elements of mesic and dry-mesic upland forest. In addition, four state-listed endangered or threatened plant species have been recorded from Trout Park Nature Preserve. Dedication of these two lots will protect undisturbed high-quality natural communities, preserve important groundwater discharge zones, and buffer Trout Park Nature Preserve from incompatible land uses.
- *Lake County--Fourth Lake Fen Nature Preserve, Dedication.* The 255-acre Fourth Lake Fen Nature Preserve is owned and managed by the Lake County Forest Preserve District and is located within the Fourth Lake Forest Preserve. Fourth Lake Fen is a large wetland complex recognized by the Illinois Natural Areas Inventory for its high quality calcareous floating mat, sedge meadow, and marsh. The mat is one of only 10 in the state and provides habitat for six state-listed endangered or threatened plant species and four animal species.

For more information, call (217) 785-0970 or see http://dnr.state.il.us/pubaffairs/2002/March/npcmarch2002.htm.

Partnership to Restore Delaware Bay Wetlands

On January 16, 2002 the Environmental News Network announced a partnership between New Jersey, Delaware, and Ducks Unlimited to restore Delaware Bay. The Delaware Bay estuary is an importance stopoff point for more than a million shorebirds that use the bay to rest and refuel during their long migrations. Recognized internationally as a wetland of importance by the Ramsar Convention on wetlands, the wetlands formed where the Delaware River meets the Delaware Bay have slowly been converted to agricultural, industrial, residential, and commercial uses. The loss of wetlands has begun to affect the health of the bay. Lower salinity levels have caused salt marsh cordgrass to die off, leading to an infestation of the invasive common reed. The common reed is a problem in many wetlands with lowered salinity. It pushes out other plants, limiting the available food sources for birds and fish.
On January 8, 2002 Ducks Unlimited signed an agreement with New Jersey and Delaware to restore wetland habitats surrounding the Delaware Bay estuary. Staff from the Fish and Wildlife Divisions of both New Jersey and Delaware, the U.S. Fish and Wildlife Service, and Ducks Unlimited will work together to restore 15,000 acres of wetlands and associated uplands. The North American Waterfowl Management Plan will be used to establish priority for restoration sites. The partnership has already identified the Maurice and Salem Rivers in New Jersey and the Milford Neck in Delaware as priority restoration sites. For more information, visit www.enn.com/news/enn-stories/2002/01/01162002/s_46041.asp.

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Upcoming Conferences and Events:
New Listings:

Workshop: Biological Control of Purple Loosestrife in Wisconsin
Wisconsin: locations vary
May 24 and June 2, 2002

People interested in learning about biological control methods for purple loosestrife, an exotic species that has infested many Wisconsin wetlands, can attend any of a number of field trips that have been scheduled throughout Wisconsin. The field trips will allow participants to see purple loosestrife growing in field settings, identify the plant in its pre-flowering phase, and consider all purple loosestrife control methods, especially biological control using beetles that feed exclusively on the plant.
"These trips will allow people to see the beetles in a natural setting, which should help people identify the beetles and the damage they do to loosestrife. Participants will also learn how to collect beetles to raise and eventually spread to other loosestrife infested areas," says Brock Woods, who coordinates the loosestrife control program for the state Department of Natural Resources (DNR). The field trips are sponsored by DNR and University of Wisconsin Cooperative Extension Service.
All Saturday and Sunday field trips begin at 10 a.m. Wednesday trips start at 3:30 p.m. Early end time on Saturdays is noon; however, if beetles are present and collecting is good, the end time will be extended to as late as 4 p.m. Participants should bring a lunch if they plan to stay later to collect beetles. Wednesday field trips will end at 5 p.m., but collecting could go until dark.
Workshop Dates and Locations:

- Saturday, May 24--Minocqua: Save More grocery store parking lot
- Saturday, May 24--Spooner/Cumberland: DNR Service Center
- Sunday, June 2--Superior: DNR Service Center

For more information contact Brock Woods at (608) 221-6349 or to find out more information about workshop locations visit www.dnr.state.wi.us/org/caer/ce/news/on/2002/ON020416.htm#art6.

Woodland Management Workshops in Wisconsin
June 1 in Wisconsin Rapids - at the Hotel Mead 451 East Grand Ave.
June 22 in Rhinelander - Timber Producers Association, 6343 Hwy. 8 West

Two workshops (scheduled for 8 a.m. to 4 p.m.) on managing woodlands for multiple benefits are scheduled at locations around the state. Each workshop is intended to focus on how private landowners can actively manage their land while ensuring the protection of water quality. The

workshops will review such topics as the effects of timber harvest on water quality and brook trout; soil stabilization to prevent erosion; protecting habitat along waterways; and wildlife management issues. The workshops also include outdoor field experience.
The workshops are sponsored by the Wisconsin Department of Natural Resources, University of Wisconsin Extension, Lumberjack RC&D, Wisconsin Forest Productivity Council, and Forest Industry & Safety Training Alliance. Registration fees are $10 for individuals or $15 for couples in advance or $15 for individuals and $20 for couples on-site. People can register by calling Lumberjack RC&D at (715) 453-1253 or by mail to Lumberjack RC&D, 518 W. Somo Avenue, Tomahawk, WI 54487. For more information, contact Jolene Willert at (608) 267-7677 or see www.dnr.state.wi.us/org/caer/ce/news/on/2002/ON020507.htm#art7.

Restoration in the Coastal Plain: Stream and Wetland Processes
October 7-10, 2002
Wilmington, North Carolina

North Carolina State University Stream Restoration Institute, North Carolina Sea Grant, and North Carolina Cooperative Extension Service are sponsoring the 5th annual North Carolina Stream Restoration Conference. The 2002 conference will feature topics including various aspects of coastal plain processes. The conference will also include several case study presentations of coastal stream and wetland restoration projects completed within the last 5 years with a focus on projects implementing natural channel design approaches. The conference will also emphasize such topics as estuarine systems, biology (benthos) of coastal streams and wetlands, vegetation for the coast, woody debris in coastal streams, buffer regulations, drainage issues, beavers, habitat and ecosystem scale restoration, mitigation, site selection, watershed assessment, effects of coastal urban areas, landowner education, and dam removal. For more information, visit www.bae.ncsu.edu/bae/programs/extension/wqg/sri/Conference/Conference2002.html.

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PREVIOUS LISTINGS

Living on the Edge: Grassroots Watershed Planning in the Pacific Northwest
May 31, 2002
Pacific Northwest

The Extension Services of the Pacific Northwest (Washington, Oregon, Idaho, and Arkansas), in partnership with Capital Press and state environmental agencies, propose to offer educational assistance to these watershed groups through an afternoon-long facilitated program at local extension offices. The televised portion will feature a video on watershed councils produced by Washington State University's College of Agriculture and Home Economics Information Department. It portrays organizational processes, environmental concerns, and lessons learned by three watershed groups in Washington, Oregon, and Idaho. The satellite conference also includes a features real-time and interactive televised panel discussion featuring people in the video. The panel discussion is open to phone or fax questions from local audiences. Finally, each extension office location will offer a locally facilitated discussion focusing on processes and concerns of the attendees from the local area. For more information, contact Jan Seago, WSU Cooperative Extension, 720 Sleater Kinney Road, SE, Suite Y, Lacey, WA 98503. Phone: (360) 786-5445; e-mail: seagoj@wsu.edu; Internet: http://wawater.wsu.edu.

Wetland Linkages: A Watershed Approach
June 2- 7, 2002
Lake Placid, New York

The Society for Wetlands Scientists 23rd annual conference will focus on wetlands and their inextricable ties to energy, the economy, and ecology. Technical presentations are planned to address issues in the forefront of the news today, including isolated wetlands, wetlands and climate change, U.S. Geological Services global climate change research, and the natural history of the Adirondacks and the coastal wetlands of the Laurentian Great Lakes. Numerous other technical sessions will be held during the 6-day conference in Lake Placid, New York. For more information on topics being covered at the conference and for registration information, visit www.sws.org/lakeplacid.

Healthy Ecosystems, Healthy People:
Linkages Between Biodiversity, Ecosystem Health, and Human Health

June 6-11, 2002
Washington, DC
The International Society for Ecosystem Health is joining with Conservation International's Center for Applied Biodiversity Science to present this conference addressing the complex linkages between biodiversity, ecosystem health, and human health. Plenary speakers, working groups, and poster sessions will discuss these linkages with the intent of gaining new understanding that will affect environmental policy. The effects of changes in land cover on ecosystem functions and integrating environmental health and economic development will be among the topics discussed. For more information on the conference, visit www.ecosystemhealth.com/hehp.
To post your restoration news and announcements, please send information to restorationupdate@tetratech-ffx.com.

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Restoration-Related Web Sites

www.epa.gov/owow/nps

> **EPA's Nonpoint Source Pollution Program.** The Nonpoint Source Pollution Program was established under section 319 of the Clean Water Act. Under section 319, state, territories, and Indian tribes receive grant money that supports a wide variety of activities to prevent nonpoint source pollution. Funded activities can include wetland creation and restoration and streambank restoration projects. *This site would be useful for anyone seeking technical assistance and funding for restoration projects or wishing to learn more about past restoration projects.*

www.fsa.usda.gov/dafp/cepd/crp.htm

> **USDA NRCS Conservation Reserve Program.** Under this program, a farmer agrees to set aside land for conservation purposes for between 10 and 15 years, and in return receives annual rental payments based on the agriculture rental value of the land, and cost-share assistance for up to 50 percent of the participant's costs in establishing approved conservation practices. *This site provides information on how technical and cost share assistance can be obtained for restoration projects.*

www.rivernetwork.org/library/libfundir.cfm

> **River Network's Directory of Funding Sources.** This web site provides links to tutorials on writing effective funding proposals. Sample proposals and cover letters are included. *This web site would be useful to anyone seeking to improve their skills in writing effective funding proposals.*

www.pacrivers.org

> **Pacific Rivers Council.** This organization works to protect and restore rivers that will promote the survival of entire ecosystems. This web site contains achievements made by the council since its founding in 1993. The site also features a multimedia presentation of the restoration of Knowles Creek, along with the innovative steps they are currently taking to restore additional streams. *This web site would be useful for anyone looking for information on the innovative measures that are being taken to restore stream health.*

www.conservation.state.mo.us/fish/watershed

Missouri's Rivers and Their Watersheds. This page is maintained by the Missouri Department of Agriculture. It contains links to watersheds throughout Missouri and watershed inventories of many of these watersheds. Inventories contain information about wetland locations in the watersheds and also provide general information about river and stream restoration efforts in each watershed. *This site would be useful for anyone seeking information concerning the typical contents of a watershed inventory, or anyone seeking information about watersheds throughout Missouri.*

www.restorewildlife.org/main.cfm

Sport Fish and Wildlife Restoration. This is an organization of sportsmen and women who have joined together to restore and protect fish and wildlife throughout the United States. This web site provides brief descriptions and links to numerous wetland and stream habitat restoration programs through out the United States and provides links to state agencies dedicated to conservation. *This site provides useful information on how sportsmen and women can promote better fishing, hunting, boating, and outdoor recreation through wildlife and habitat restoration.*

www.sierraclub.org/wetlands/index.asp

Sierra Club Clean Water and Wetlands. The Sierra Club provides a variety of information about wetlands as part of their web site. The Clean Water and Wetlands site provides an overview of the importance of wetlands, success stories of wetland restoration, and the flood control and pollution reducing power of wetland areas, as well as current wetland issues in the news. *This site would be useful for anyone looking for information that could be used to gain public support for wetland restoration projects.*

www.cheswildlife.org

Chesapeake Wildlife Heritage. Chesapeake Wildlife Heritage is a nonprofit conservation organization dedicated to creating, restoring, and protecting wildlife habitat and establishing more sustainable agriculture through direct action, education, and research, in partnership with public and private landowners. *Habitat Works*, the organization's newsletter, highlights the organization's efforts to restore wetland habitats. *This site would be useful for landowners looking for information on how to improve their land to benefit the wetland habitats surrounding Chesapeake Bay.*

www.deltawaterfowl.org/programs/programs.html

Delta Waterfowl. Delta Waterfowl is an association made up of waterfowl hunters who wish to protect and preserve the habitat of waterfowl to ensure healthy waterfowl populations. This web site contains information on the Adopt-A-Pothole program that supports the restoration, protection, and management of prairie potholes on privately owned land. The association also supports waterfowl and wetland-related research through their research facilities and graduate student support programs. *This web site would be useful for anyone seeking practical information on protecting prairie potholes or research on waterfowl-related wetland restoration projects.*

http://inlet.geol.sc.edu/estnet.html

> **Estuary-Net.** Estuary-Net was developed by the National Estuarine Research Reserve System in response to water quality issues arising in coastal areas. This project strives to develop collaborations among high schools, community volunteer water quality monitoring groups, local officials, state Coastal Zone Management (CZM) programs, and National Estuarine Research Reserves (NERRS) to solve nonpoint source pollution problems in estuaries and their watersheds. It includes information on estuarine ecology, water quality monitoring, and a curriculum for estuaries, as well as example educational activities. *This site would be useful for someone seeking estuarine-related educational resources.*

Let us know about your restoration-related web site. Please send relevant URLs to restorationupdate@tetratech-ffx.com.

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Information Resources

A Citizen's Guide to Conserving Riparian Forests
by Susan Peterson and Kenneth Kimball, 1995.
A cooperative project between River Network and the Appalachian Mountain Club, this handbook helps readers to identify and protect riverside forests. Emphasis is on the Northeastern United States, but many concepts covered are applicable elsewhere. The booklet includes guidelines for establishing buffers, case studies, and bibliography of research. This publication is available from River Network, PO Box 8787, Portland, OR 97207. Phone: (503) 241-3506.
Plant it Right
by the Washington State University Cooperative Extension
The educational package Plant it Right contains both a video and fact sheet aimed at improving the success of streamside planting projects. The video is a 17-minute program geared for students and volunteers that provides essential information on proper planting techniques. Cost: $24.95. A 2-page free color guide (brochure) is also available. For more information, see http://cru84.cahe.wsu.edu/cgi-bin/pubs/VT0113.html.
Riparian Publications
by Manomet Maine, Forest Conservation and Management Program
Available for download at http://manometmaine.com/publications.html the publications include diverse information about riparian buffers and forest management. Sample titles include: *Forest structure in upland and riparian buffer strips in western Maine*, *Microclimate changes across upland and riparian clearcut-forest boundaries in Maine*, *Do forested buffer strips protect headwater stream temperature in western Maine?*, and *Herbaceous plant communities in upland and riparian forest remnants in western Maine*.
Riparian Publications
By Delaware Riverkeeper, Pennsylvania
Delaware Riverkeeper offers several riparian restoration-related resources over its web site at http://www.delawareriverkeeper.org/publications.html. They include the following:

- *Stream Restoration in Pennsylvania: Ten Case Studies*. Cost: $5 (one free publication to nonprofits and watershed associations). A 76-page full-color booklet outlining various restoration projects. Every completed restoration project is a learning experience for the participants. Sharing the lessons learned from these projects is a way for restoration practitioners to learn from each other. If you are considering a restoration project, this book will help you understand the techniques and approaches to organizing and implementing a successful project.

- *25 Ways to Protect Your Stream and Streamside Property*. Cost: free (10 free to nonprofits and watershed associations). This brochure is designed to help homeowners improve their management of streamside properties. A list of recommended plants for riparian buffers is the centerpiece of this informative brochure.
- *Restoring Our Streams: Communities Coming Together--a video.* Cost: $5 (One copy free to nonprofits or community watershed groups). A 20-minute video introduction to organizing a restoration projects. Geared toward watershed groups starting out in restoration, it follows Riverkeeper and its partners through the steps of organizing and implementing a project.

If you'd like to publicize the availability of relevant information resources, please send information to restorationupdate@tetratech-ffx.com.